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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/645,790	08/23/2000	Zhen He	10003284-1	3545

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EXAMINER

BRINICH, STEPHEN M

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/645,790	Applicant(s) HE ET AL.	
	Examiner Stephen M Brinich	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4-14,16 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,4-14,16 and 20-25 is/are allowed.
- 6) ☒ Claim(s) 26-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites a "printing system" comprising performing "steps". It is unclear whether the claim is directed to an apparatus or a method.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 26 & 28-29, insofar as claim 26 is understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Samworth (5892588).

Re claims 26 & 28-29, Samworth '588 discloses (column 2, lines 11-27) halftone printing arrangements in which both the density (i.e. dot frequency - column 1, lines 22-25) and the size of halftone dots are modulated. The density modulation operation of Samworth '588 randomly deletes halftone dots in accordance with a pixel gray level to be reproduced. This inherently modulates the spacing of the remaining dots (the fewer dots, the greater the average spacing) and creates a

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dispersed-dot halftone (the deleted dots, and hence the remaining dots, are selected randomly).

Further re claims 28-29, Samworth '588 discloses (column 16-19) the halftoning process as a "computer graphics" (i.e. carried out by some form of "computer" following a program) technique.

4. Claims 26 & 28-30, insofar as claim 26 is understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Morimatsu et al.

Re claims 26 & 28-30, Morimatsu et al. (column 3, line 62 - column 4, line 6) discloses halftone printing arrangements in which both the density (i.e. position distribution) and the size of halftone dots are modulated to produce a dispersed-dot halftone (Figures 5-6). Morimatsu et al. further discloses (column 3, line 62 - column 4, line 6) the use of error diffusion halftoning to modulate the dot size and dot density in accordance with the pixel tone level to be reproduced.

Further re claims 28-29, Morimatsu et al. discloses the use of calculation in the density and size modulations. A device capable of calculation is readable upon a (not further specified) "computer", and is inherently following some calculation algorithm ("program").

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Claim Rejections - 35 USC § 103

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samworth (5892588) or Morimatsu et al.

Re claim 31, Samworth '588 or Morimatsu et al. does not disclose expressly the use of a microprocessor to calculate dot density and dot size parameters.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a microprocessor as the calculation means to execute the dot size and density parameter calculations.

The suggestion/motivation for doing so would have been to perform a known mathematical calculation with standard "off the shelf" hardware.

Therefore, it would have been obvious to combine the use of a microprocessor with Samworth '588 or Morimatsu et al. to obtain the invention as specified in claim 31.

6. Claims 27 & 32, insofar as claim 27 is understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Samworth (5892588) or Morimatsu et al. in view of De Maio.

As noted above, Samworth (5892588) or Morimatsu et al. discloses halftone printing arrangements in which both the density and the size of halftone dots are modulated.

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Re claims 27 & 32, Samworth '588 or Morimatsu et al. does not disclose expressly the use of an electrophotographic printer in which halftone dot sizes and positions are set by pulse width modulation.

De Maio discloses (Abstract) an electrophotographic printer in which pulse width modulation is used to set halftone dots on a printer medium.

Samworth '588 or Morimatsu et al. and De Maio are combinable because they are from the printer field.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the De Maio printer to output the result of Samworth '588 or Morimatsu et al. halftone processing.

The suggestion/motivation for doing so would have been to generate an image hard copy using an electrophotographic printer.

Therefore, it would have been obvious to combine De Maio with Samworth '588 or Morimatsu et al. to obtain the invention as specified in claims 27 & 32.

Allowable Subject Matter

7. Claims 2, 4-14, 16, & 20-25 are allowed.

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Response to Arguments

8. Applicant's arguments (Response filed 7/19/04: page 9, line 12 - page 11, line 30) re claims 26 & 28 (and dependent claims 27 & 29-32) fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

9. Applicant's arguments, see Response filed 7/19/04 (page 9, lines 8-11), with respect to claim 4 (and dependent claims 2, 5-14, 16, & 20-21) have been fully considered and are persuasive. The rejection of claims 9-14, 16, & 20-21 and the objection to claims 4-8 have been withdrawn.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Brinich at 703-305-4390. The examiner can normally be reached on weekdays 7:00-4:30, alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2600 Customer Service center at 703-306-0377.


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If attempts to contact the examiner and the Customer Service Center are unsuccessful, supervisor David Moore can be contacted at 703-308-7452.

Faxes pertaining to this application should be directed to the Tech Center 2600 official fax number, which is 703-872-9306.

Hand-carried or courier-delivered correspondence pertaining to this application should be directed to

US Patent and Trademark Office
220 South 20th Street
Crystal Plaza Two, Lobby, Room 1B03
Arlington VA 22202


Stephen M Brinich
Examiner
Art Unit 2624

smb

February 2, 2005